



9.11 TOWN OF LAGRANGE

This section presents the jurisdictional annex for the Town of LaGrange.

9.11.1 Hazard Mitigation Plan Point of Contact

The following individuals have been identified as the hazard mitigation plan's primary and alternate points of contact.

Primary Point of Contact	Alternate Point of Contact
Wanda Livigni, Administrator of Planning & Public Works 120 Stringham Road, LaGrangeville, NY 845-452-8562 wlivigni@lagrangenyny.org	Alan Bell, Supervisor 120 Stringham Road, LaGrangeville, NY 845-452-9062 abell@lagrangenyny.org

9.11.2 Municipal Profile

The town was originally established in 1821 as "Freedom" from parts of the Towns of Beekman and Fishkill, but confusion with another location caused the name to be changed to "LaGrange" in 1828. According to the United States Census Bureau, the town has a total area of 39.9 square miles (103 km²), of which, 39.7 square miles (103 km²) of it is land and 0.2 square miles (0.52 km²) of it is water. The population was 15,730 at the 2010 census.

Three state highways bisect the town and connect it with other towns in Dutchess County and the surrounding area. The Taconic State Parkway is a north-south parkway through LaGrange. New York State Route 55 is an east-west road that goes through the center of the town. New York State Route 82 is a highway that goes southwest-northeast through the town, from Hopewell Junction to Moores Mills.

The Town includes the hamlets of Arthursburg, Billings, Freedom Plains, LaGrangeville, Manchester Bridge, Moores Mill, Noxon, and Titus. (*Source: wikipedia*).

Growth/Development Trends

The following table summarizes recent residential/commercial development since 2010 to present and any known or anticipated major residential/commercial development and major infrastructure development that has been identified in the next five years within the municipality. Refer to the map in Section 9.8.8 of this annex which illustrates the hazard areas along with the location of potential new development.

Table 9.11-1. Growth and Development

Property or Development Name	Type (e.g. Res., Comm.)	# of Units / Structures	Address and Block/Lot	Known Hazard Zone(s)	Description/Status of Development
Recent Development from 2010 to Present					
Frank Farm – Phase 2	Single family homes	33	Ridgeline Drive	None	90% constructed
Sleight Farm – Phase 2 & 4	Single family homes	32	Jamison Court Ridgeline Drive	None	50% constructed
Providence Estates	Single family homes	5	Providence Way	Floodplain	3/5 homes built
Known or Anticipated Development in the Next Five (5) Years					



Property or Development Name	Type (e.g. Res., Comm.)	# of Units / Structures	Address and Block/Lot	Known Hazard Zone(s)	Description/Status of Development
Daley Farms	Mixed Residential	66 single family homes; 6 estate lots; 56 townhomes	6360-03-081270; 6360-03-099220; 6360-03-229310	Floodplain; wetlands	Planning Board Subdivision/Site Plan Consideration
Overlook PDD	Multi-family	91 units (co-op/apt/condo)	6261-02-896803	Floodplain	Conditional Re-approved Subdivision
Harvest Ridge Subdivision	Single Family Homes	49 single family homes	6460-04-803005; 6460-04-740133	Floodplain	Conditional Re-approved Subdivision
Sleight Farm – Ph 2 – to complete	Single family homes	14	Ridgeline Drive	None	Conditional Re-approved Phased Subdivision
Frank Farm – Ph 3 & 5 – to complete	Single family homes	28	Ridgeline Drive	None	Conditional Re-approved Phased Subdivision

* Only location-specific hazard zones or vulnerabilities identified.

9.11.3 Natural Hazard Event History Specific to the Municipality

Dutchess County has a history of natural and non-natural hazard events as detailed in Volume I, Section 5.0 of this plan. A summary of historical events is provided in each of the hazard profiles and includes a chronology of events that have affected the County and its municipalities. For the purpose of this Plan, events that have occurred in the County from 2008 to present were summarized to indicate the range and impact of hazard events in the community. Information regarding specific damages is included, if available, based on reference material or local sources. This information is presented in the table below. For details of these and additional events, refer to Volume I, Section 5.0 of this plan.

Table 9.11-2. Hazard Event History

Dates of Event	Event Type	FEMA Declaration # (If Applicable)	County Designated?	Summary of Damages/Losses
April 14-18, 2007	Severe Storm and Inland & Coastal Flooding	DR-1692	Yes	Received \$204,156.86 for: various culvert and bank erosion, sedimentation basin damage throughout Town on local roads by highway Department; damage to sewer pump station; fence damage, controls damage, road washout at water facility; baseball field restoration, soil/berm stabilization at LaGrange Park; soil stabilization due to erosion, concession stand restoration, lake float restoration, beach restoration, blacktop restoration at Freedom Park
December 26-27, 2010	Severe Winter Storm & Snowstorm/Nor'Easter	DR-1957	Yes	Received \$56,429.70 for: opening & clearing roads with equipment, sand and salt
August 26 – September 5, 2011	Hurricane Irene	DR-4020	Yes	Received \$99,690.92 for: damages to firehouse; private basement flooding, power outage, downed power lines response by Fire District; restoration to lake and beach at Freedom Park; downed utility pole at sewer facility; debris removal along local roads & ROW, restoration of damaged local roads and ROW by Highway Department



9.11.4 Hazard Vulnerabilities and Ranking

The hazard profiles in Section 5.0 of this plan have detailed information regarding each plan participant's vulnerability to the identified hazards. The following summarizes the hazard vulnerabilities and their ranking in the Town of LaGrange. For additional vulnerability information relevant to this jurisdiction, refer to Section 5.0.

Hazard Risk/Vulnerability Risk Ranking

The table below summarizes the hazard risk/vulnerability rankings of potential hazards for the Town of LaGrange.

Table 9.11-3. Hazard Risk/Vulnerability Risk Ranking

Hazard type	Estimate of Potential Dollar Losses to Structures Vulnerable to the Hazard ^{a, c}	Probability of Occurrence	Risk Ranking Score (Probability x Impact)	Hazard Ranking ^b
Coastal Storm	100-year MRP: \$4,209,797.00 500-year MRP: 24971423 Annualized: \$309,935.00	Frequent	48	High
Drought	Damage estimate not available	Frequent	42	High
Earthquake	100-Year GBS: \$121,437 500-Year GBS: \$3,110,554 2,500-Year GBS: \$32,773,487	Occasional	28	Medium
Extreme Temperature	Damage estimate not available	Frequent	21	Medium
Flood	1% Annual Chance: \$152,656,647	Frequent	36	High
Severe Storm	100-Year MRP: \$4,209,797 500-year MRP: \$24,971,423 Annualized: \$309,935	Frequent	48	High
Winter Storm	1% GBS: \$37,287,752 5% GBS: \$186,438,761	Frequent	51	High
Wildfire	Estimated Value in the WUI: \$3,409,307,973	Frequent	42	High

Notes:

GBS = General building stock; MRP = Mean return period.

- The general building stock valuation is based on the custom inventory generated for the municipality and based on improved value.
- High = Total hazard priority risk ranking score of 31 and above
Medium = Total hazard priority risk ranking of 20-30+
Low = Total hazard risk ranking below 20
- Loss estimates for the severe storm and severe winter storm hazards are structural values only and do not include the estimated value of contents. The earthquake and hurricane wind hazards were evaluated by Census tract. The Census tracts do not exactly align with municipal boundaries; therefore, a total is reported for each Town inclusive of the Villages. Loss estimates for the flood and earthquake hazards represent both structure and contents. Potential flood loss estimates were generated using Hazus-MH 2.2 and the 2011 FEMA DFIRM for the 1-percent annual chance event. For the wildfire hazard, the improved value and estimated contents of buildings located within the identified hazard zones is provided.

National Flood Insurance Program (NFIP) Summary

The following table summarizes the NFIP statistics for the Town of LaGrange.

Table 9.11-4. NFIP Summary

Municipality	# Policies (1)	# Claims (Losses) (1)	Total Loss Payments (2)	# Rep. Loss Prop. (1)	# Severe Rep. Loss Prop. (1)	# Policies in 100-year Boundary (3)
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Municipality	# Policies (1)	# Claims (Losses) (1)	Total Loss Payments (2)	# Rep. Loss Prop. (1)	# Severe Rep. Loss Prop. (1)	# Policies in 100- year Boundary (3)
Town of LaGrange	99	32	\$406,971.71	3	0	63

Source: FEMA Region 2, 2014

(1) Policies, claims, repetitive loss and severe repetitive loss statistics provided by FEMA Region 2, and are current as of 12/31/2014. Please note the total number of repetitive loss properties includes the severe repetitive loss properties. The number of claims represents claims closed by 12/31/14.

(2) Total building and content losses from the claims file provided by FEMA Region 2.

(3) The policies inside and outside of the flood zones is based on the latitude and longitude provided by FEMA Region 2 in the policy file.

Notes: FEMA noted that where there is more than one entry for a property, there may be more than one policy in force or more than one GIS possibility.

A zero percentage denotes less than 1/100th percentage and not zero damages or vulnerability as may be the case.

Number of policies and claims and claims total exclude properties located outside County boundary, based on provided latitude and longitude

Critical Facilities

The table below presents HAZUS-MH estimates of the damage and loss of use to critical facilities in the community as a result of a 1- and 0.2-percent annual chance flood events.

Table 9.11-5. Potential Flood Losses to Critical Facilities

Name	Type	Exposure		Potential Loss from 1% Flood Event		
		1% Event	0.2% Event	Percent Structure Damage	Percent Content Damage	Days to 100- Percent ⁽¹⁾
Grandview Water District Pump	Potable Pump	X	X	-	-	-
LaGrange Club Estates Pump	Potable Pump	X	X	-	-	-
LaGrange Club Estates Storage Facility	Potable Storage Facility	X	X	4.7	-	-
Noxon Knolls Pump #2	Wastewater Pump	X	X	-	-	-
Town Center Water Improvement Area Pump House	Potable Pump	X				
Inn at the Falls	Accommodation	X	X	0	0	-

Source: Dutchess County, NYGIS

Note (1): HAZUS-MH 2.2 provides a general indication of the maximum restoration time for 100% operations. Clearly, a great deal of effort is needed to quickly restore essential facilities to full functionality; therefore this will be an indication of the maximum downtime (HAZUS-MH 2.1 User Manual).

Note (2): In some cases, a facility may be located in the DFIRM flood hazard boundary; however HAZUS did not calculate potential loss. This may be because the depth of flooding does not amount to any damages to the structure according to the depth damage function used in HAZUS for that facility type. Further, HAZUS-MH may estimate potential damage to a facility that is outside the DFIRM because the model generated a depth grid beyond the DFIRM boundaries.

X Facility located within the DFIRM boundary

- Not calculated by HAZUS-MH 2.2

Other Vulnerabilities Identified

The municipality has identified the following vulnerabilities within their community:

- None identified at this time.



9.11.5 Capability Assessment

This section identifies the following capabilities of the local jurisdiction:

- Planning and regulatory capability
- Administrative and technical capability
- Fiscal capability
- Community classification
- National Flood Insurance Program
- Integration of Mitigation Planning into Existing and Future Planning Mechanisms

Planning and Regulatory Capability

The table below summarizes the regulatory tools that are available to the Town of LaGrange.

Table 9.11-6. Planning and Regulatory Tools

Tool / Program (code, ordinance, plan)	Do you have this? (Yes/No) If Yes, date of adoption or update	Authority (local, county, state, federal)	Dept. /Agency Responsible	Code Citation and Comments (Code Chapter, name of plan, explanation of authority, etc.)
Planning Capability				
Master Plan	7/13/05	Local	Town Board	
Capital Improvements Plan	Annual	Local	Town Board – by each Dept	
Floodplain Management / Basin Plan	3/8/12	Federal & local	Building Dept	Ch. 120 Flood Plan Prevention
Stormwater Management Plan	10/24/07	State & local	Planning & Public Works Dept	Ch. 197 Stormwater Management & Erosion & Sedimentation Control
Open Space Plan	11/4/08	State & Local	Building Dept	Ch. 120-32 Zoning
Stream Corridor Management Plan	Yes	Local	Building Department	Ch. 120-31 Zoning
Watershed Management or Protection Plan	No			
Economic Development Plan	Pending	Local	Business Economic Develop. Committee	Advisory Committee
Comprehensive Emergency Management Plan	2005	Local	Town Board & Depts	
Emergency Operation Plan	No			
Post-Disaster Recovery Plan	No			
Transportation Plan	No			
Other Plans:				
Regulatory Capability				
Building Code	Yes	State & Local	Building Dept	Ch. 83 Building Construction Admin. & Enforcement
Zoning Ordinance	Yes	Local	Building & Zoning Dept	Ch. 240 Zoning



Tool / Program (code, ordinance, plan)	Do you have this? (Yes/No) If Yes, date of adoption or update	Authority (local, county, state, federal)	Dept. /Agency Responsible	Code Citation and Comments (Code Chapter, name of plan, explanation of authority, etc.)
Subdivision Ordinance	Yes	Local	Planning & Public Works Dept	Ch. 203 Subdivision of Land
NFIP Flood Damage Prevention Ordinance	Yes	Federal, State, Local	Building Dept	Ch. 120 Flood Damage Prevention
NFIP: Cumulative Substantial Damages	No			
NFIP: Freeboard	Yes	State, Local		State mandated BFE+2 for single and two-family residential construction, BFE+1 for all other construction types
Growth Management Ordinances	No			
Site Plan Review Requirements	Yes	Local	Build & Zoning, Plan & PW Depts	Ch. 240-72 Project Develop. Plans
Stormwater Management Ordinance	2007	State & Local	Planning & Public Works Dept	Ch. 197 Stormwater Management & Erosion & Sedimentation Control
Municipal Separate Storm Sewer System (MS4)	March 10, 2003	State & Local	Planning & Public Works Dept	Ch. 197 Stormwater Management & Erosion & Sedimentation Control
Natural Hazard Ordinance	No			
Post-Disaster Recovery Ordinance	No			
Real Estate Disclosure Requirement	Yes	State		NYS mandate, Property Condition Disclosure Act, NY Code - Article 14 §460-467
Other [Special Purpose Ordinances (i.e., sensitive areas, steep slope)]	Yes	State & Local	Zoning	Ch. 240-26 Ch. 240-112

Administrative and Technical Capability

The table below summarizes potential staff and personnel resources available to the Town of LaGrange.

Table 9.11-7. Administrative and Technical Capabilities

Resources	Is this in place? (Yes or No)	Department/ Agency/Position
Administrative Capability		
Planning Board	Yes	Planning Board/Planning & Public Works Dept
Mitigation Planning Committee	No	
Environmental Board/Commission	Yes	Conservation Advisory Committee
Open Space Board/Committee	Yes	Open Space Committee
Economic Development Commission/Committee	Yes	Business Economic Development Committee
Maintenance Programs to Reduce Risk		
Mutual Aid Agreements	No	
Technical/Staffing Capability		
Planner(s) or Engineer(s) with knowledge of land development and land management practices	Yes	Administrator of Planning & Public Works (Engineer)



Resources	Is this in place? (Yes or No)	Department/ Agency/Position
Engineer(s) or Professional(s) trained in construction practices related to buildings and/or infrastructure	Yes	Building Inspector & Administrator of Planning & Public Works & Highway Superintendent
Planners or engineers with an understanding of natural hazards	Yes	Building Inspector & Administrator of Planning & Public Works
NFIP Floodplain Administrator	Yes*	Per Town Code 120-11: Zoning Enforcement Officer (Currently Kenneth McLaughlin)
Surveyor(s)	No	
Personnel skilled or trained in GIS and/or HAZUS-MH applications	No	
Scientist familiar with natural hazards	No	
Emergency Manager	Yes	Town Supervisor
Grant Writer(s)	No	
Staff with expertise or training in benefit/cost analysis	No	
Professionals trained in conducting damage assessments	No	

Fiscal Capability

The table below summarizes financial resources available to the Town of LaGrange.

Table 9.11-8. Fiscal Capabilities

Financial Resources	Accessible or Eligible to Use (Yes/No/Don't Know)
Community development Block Grants (CDBG, CDBG-DR)	Yes
Capital Improvements Project Funding	Yes
Authority to Levy Taxes for specific purposes	Yes
User fees for water, sewer, gas or electric service	Yes – water and sewer where applicable
Impact Fees for homebuyers or developers of new development/homes	Targeted – limited
Stormwater Utility Fee	Where applicable
Incur debt through general obligation bonds	Yes
Incur debt through special tax bonds	Yes
Incur debt through private activity bonds	No
Withhold public expenditures in hazard-prone areas	No
Other Federal or State Funding Programs	Yes
Open Space Acquisition Funding Programs	Yes
Other	

Community Classifications

The table below summarizes classifications for community program available to the Town of LaGrange.

Table 9.11-9. Community Classifications

Program	Do you have this? (Yes/No)	Classification (if applicable)	Date Classified (if applicable)
Community Rating System (CRS)	Yes		8 to 10 years ago
Building Code Effectiveness Grading Schedule	Yes		



Program	Do you have this? (Yes/No)	Classification (if applicable)	Date Classified (if applicable)
(BCEGS)			
Public Protection (ISO Fire Protection Classes 1 to 10)	Yes		Over 8 years ago
Storm Ready	No		
Firewise	No		
Disaster/Safety Programs in/for Schools	TBD	Not Town's Jurisdiction	Arlington Central School District
Organizations with Mitigation Focus (advocacy group, non-government)	No		
Public Education Program/Outreach (through website, social media)	Yes	Website & social media	
Public-Private Partnerships	NP		

N/A = Not applicable. NP = Not participating. - = Unavailable. TBD = To be determined.

The classifications listed above relate to the community's ability to provide effective services to lessen its vulnerability to the hazards identified. These classifications can be viewed as a gauge of the community's capabilities in all phases of emergency management (preparedness, response, recovery and mitigation) and are used as an underwriting parameter for determining the costs of various forms of insurance. The CRS class applies to flood insurance while the BCEGS and Public Protection classifications apply to standard property insurance. CRS classifications range on a scale of 1 to 10 with class 1 being the best possible classification, and class 10 representing no classification benefit. Firewise classifications include a higher classification when the subject property is located beyond 1000 feet of a creditable fire hydrant and is within 5 road miles of a recognized Fire Station.

Criteria for classification credits are outlined in the following documents:

- The Community Rating System Coordinators Manual
- The Building Code Effectiveness Grading Schedule
- The ISO Mitigation online ISO's Public Protection website at <http://www.isomitigation.com/ppc/0000/ppc0001.html>
- The National Weather Service Storm Ready website at <http://www.weather.gov/stormready/howto.htm>
- The National Firewise Communities website at <http://firewise.org/>

Self-Assessment of Capability

The table below provides an approximate measure of the Town of LaGrange's capability to work in a hazard-mitigation capacity and/or effectively implement hazard mitigation strategies to reduce hazard vulnerabilities.

Table 9.11-10. Self-Assessment Capability for the Municipality

Area	Degree of Hazard Mitigation Capability		
	Limited (If limited, please indicate your obstacles?)*	Moderate	High
Planning and Regulatory Capability			X
Administrative and Technical Capability			X



Area	Degree of Hazard Mitigation Capability		
	Limited (If limited, please indicate your obstacles?)*	Moderate	High
Fiscal Capability		X	
Community Political Capability			X
Community Resiliency Capability		X	
Capability to Integrate Mitigation into Municipal Processes and Activities.			X

National Flood Insurance Program

NFIP Floodplain Administrator: Kenneth McLaughlin – Building and Fire Inspector, Zoning Administration

As of 1/31/2015 there are 107 NFIP policies in force within the community, insuring \$ 25,766,400 of property with total annual insurance premiums of \$ 114,943. Since 1978, 32 NFIP claims have been paid totaling \$ 406,972. As of 12/31/2014, there are 3 Repetitive Loss and 0 Severe Repetitive Loss properties in the community.

The Town is in full compliance with the NFIP, however has no information as to when the last Community Assistance Visit was performed. The Town of LaGrange does not participate in the Community Rating System (CRS) program

The Building, Zoning & Fire Prevention Department is responsible for the oversight of Building Construction & Development in the Town of LaGrange to insure compliance with Federal, State, and Local Codes regulating land use as set forth by the Town Board. The Department provides contact and technical information to support its constituency with meeting the requirements of the NFIP, including providing records searches which includes flood zone information.

The Town has included several initiatives in the mitigation strategy identified below to support participation in the NFIP and reduce their overall flood risk, specifically:

- LG-4, to update the Town's Flood Damage Prevention Ordinance to provide the Town with greater ability to appropriately manage and regulate floodplain development.
- LG-3, to continue to compile and archive data and information in an effort to update the NFIP floodplain mapping to better reflect actual flood conditions/risk throughout the Town.

Integration of Hazard Mitigation into Existing and Future Planning Mechanisms

For a community to succeed in reducing long-term risk, hazard mitigation must be integrated into the day-to-day local government operations. As part of this planning effort, each community was surveyed to obtain a better understanding of their community's progress in plan integration. A summary is provided below. In addition, the community identified specific integration activities that will be incorporated into municipal procedures.

Planning

Land Use Planning: The Town has a Planning Board and Zoning Board of Appeals which review all applications for development and consider natural hazard risk areas in their review. Many development activities require additional levels of environmental review, specifically NYS SEQRA and Federal NEPA requirements.



Conservation Planning: The Conservation Advisory Council (CAC) acts in an advisory role to the Town of LaGrange. The objective is to preserve and enhance the environmental quality of the town. They review applications received from the Planning Board and make recommendations on potential environmental impacts of those applications.

Open Space Preservation: The Town has identified mitigation action LG-4, to continue to acquire Floodplain/Floodway Lands through the Town's Open Space program, often with coordination with the Dutchess County Land Conservancy.

Regulatory and Enforcement

Flood Damage Prevention Chapter 120: It is the purpose of this chapter to promote the public health, safety, and general welfare and to minimize public and private losses due to flood conditions in specific areas by provisions designed to:

- A. Regulate uses which are dangerous to health, safety and property due to water or erosion hazards or which result in damaging increases in erosion or in flood heights or velocities;
- B. Require that uses vulnerable to floods, including facilities which serve such uses, be protected against flood damage at the time of initial construction;
- C. Control the alteration of natural floodplains, stream channels, and natural protective barriers which are involved in the accommodation of floodwaters;
- D. Control filling, grading, dredging and other development which may increase erosion or flood damages;
- E. Regulate the construction of flood barriers which will unnaturally divert floodwaters or which may increase flood hazards to other lands; and
- F. Qualify for and maintain participation in the National Flood Insurance Program.

The Town has identified mitigation action LG-4, to update the Town's Flood Damage Prevention Ordinance to provide the Town with greater ability to appropriately manage and regulate floodplain development.

Further, the Town has identified mitigation action LG-3, to continue to compile and archive data and information in an effort to update the NFIP floodplain mapping to better reflect actual flood conditions/risk throughout the Town.

Zoning Code Chapter 240: LaGrange's zoning code includes districts and standards pertaining to the mitigation of hazards. These sections include the Floodplain regulations, stormwater management & erosion control standards.

Site Plan/Subdivision Review Chapter 203: The Town's Planning Board is tasked with site plan/subdivision review. The Planning board pays special attention to ensure that developments mitigate the issues associated with flooding or steep slopes.

The Town has identified mitigation action LG-2, to amend the sub-division ordinance to require new developments to underground all electric utilities.

Building Code Chapter 83: The building codes are strictly enforced to make new and renovated buildings as prepared as possible for hazard related incidents. The chapter includes a provision to allow the building inspector to make emergency repairs to protect the health safety and welfare of the residents.

MS4: the Town of LaGrange is a MS4 regulated community with a stormwater management plan.



Fiscal

Operating Budget: The Town's operating budget contains minimal provisions for expected repairs like snow removal and infrastructure repair after a storm or natural disaster.

Education and Outreach

The Planning Department is a member of the Dutchess County Planning Federation and attends trainings and researches best practices that other communities are implementing. DPW takes classes and implements in hazardous reduction techniques in various capital improvements. The Town has planned to budget for training for personal including professional development geared towards health and safety.

9.11.6 Mitigation Strategy and Prioritization

This section discusses past mitigations actions and status, describes proposed hazard mitigation initiatives, and prioritization.

Past Mitigation Initiative Status

The Town of LaGrange has no prior mitigation strategy.

Completed Mitigation Initiatives not Identified in the Previous Mitigation Strategy

The Town of LaGrange has identified the following as mitigation projects/activities that have been completed, are planned, or on-going within the municipality:

- Through the Town's Open Space program, often with coordination with the Dutchess County Land Conservancy, the Town has acquired several flood vulnerable tracts along the Wappingers Creek.

Proposed Hazard Mitigation Initiatives for the Plan

The Town of LaGrange participated in a mitigation action workshop in May 2015 and was provided the following FEMA publications to use as a resource as part of their comprehensive review of all possible activities and mitigation measures to address their hazards: FEMA 551 'Selecting Appropriate Mitigation Measures for Floodprone Structures' (March 2007) and FEMA 'Mitigation Ideas – A Resource for Reducing Risk to Natural Hazards' (January 2013).

Table 9.11-11 summarizes the comprehensive-range of specific mitigation initiatives the Town of LaGrange would like to pursue in the future to reduce the effects of hazards. Some of these initiatives may be previous actions carried forward for this Plan. These initiatives are dependent upon available funding (grants and local match availability) and may be modified or omitted at any time based on the occurrence of new hazard events and changes in municipal priorities. Both the four FEMA mitigation action categories and the six CRS mitigation action categories are listed in the table below to further demonstrate the wide-range of activities and mitigation measures selected.

As discussed in Section 6, 14 evaluation/prioritization criteria are used to complete the prioritization of mitigation initiatives. For each new mitigation action, a numeric rank is assigned (-1, 0, or 1) for each of the 14 evaluation criteria to assist with prioritizing your actions as 'High', 'Medium', or 'Low.' The table below summarizes the evaluation of each mitigation initiative, listed by Action Number.

Table 9.11-12 provides a summary of the prioritization of all proposed mitigation initiatives for the Plan.



Table 9.11-11. Proposed Hazard Mitigation Initiatives

Initiative	Mitigation Initiative	Applies to New and/or Existing Structures*	Hazard(s) Mitigated	Goals and Objectives Met	Lead and Support Agencies	Estimated Benefits	Estimated Cost	Sources of Funding	Timeline	Priority	Mitigation Category	CRS Category
LG-1	Roadway Flood Mitigation: Mitigate flooding over roads throughout the Town, which may involve culvert upsizing, upgrading to box culverts/3-sided structures, etc. as determined by site-specific conditions. Assure that any mitigation addresses the 500-year flood event or "worst damage scenario". The following locations have been identified for mitigation: <ul style="list-style-type: none"> • Velie Road at approximately 118 Velie Road • Barmore Road at approximately 20 Barmore Road • Skidmore Road at approximately 321 Skidmore Road • Gidley Road at approximately 2 Dawn Lane • Gidley Road north of Creekside Road • Emans Road on the west-side of the intersection with Route 82 • Todd Hill Road at approximately 68 Todd Hill Road • Freedom Park (Town Facility – entrance) on Skidmore Road • DeGarmo Road (County Road) at Town Boundary with the Town of Poughkeepsie (south of Wappingers – site of Town Water Facility – Manchester Water Plant) • Milano Road/Flynn Road/Colin Road (the neighborhood we have already acquired 2 parcels in to perform remediation work) • Daley Road at the Town boundary • Moore Rd & Skidmore Road intersection 											
	See Action Worksheet											
	See above	Existing	Flood; Severe Storm	2, 4, 7	Town Highway; Town Planning & PW (support); DCDPW	Reduced damage to transportation infrastructure; localized property flooding; road closures; potential life safety	Medium – High (project specific)	Town Budget; FEMA and other grants as available	Project Specific – More extensive projects may be dependent on funding availability	Medium – High (project specific)	SIP	PP
LG-2	Amend sub-division ordinance to require new developments to underground all electric utilities. Leverage opportunities to underground existing utilities, particularly in the case of service to critical facilities and infrastructure. (Integration Action)											
	See above	New and Existing	Severe Storm; Severe Winter Storm	1, 2, 5, 6, 7	Town Board; Planning Board; Town Building Department; Town Planning & PW Dept	Reduced vulnerability to power outages; loss of critical services	High	Property owner/ Special District	Long-term (on-going)	Medium	LPR, SIP	PR, PP
LG-3	Improve Floodplain Mapping: Continue to compile and archive data and information in an effort to update the NFIP floodplain mapping to better reflect actual flood conditions/risk throughout the Town. Existing mapping is believed to have areas with significant errors and discrepancies.											



Table 9.11-11. Proposed Hazard Mitigation Initiatives

Initiative	Mitigation Initiative	Applies to New and/or Existing Structures*	Hazard(s) Mitigated	Goals and Objectives Met	Lead and Support Agencies	Estimated Benefits	Estimated Cost	Sources of Funding	Timeline	Priority	Mitigation Category	CRS Category
	See above.	New and Existing	Flood	2, 3, 5	Town Board; Town Building & Zoning Dept; Town Planning & PW Dept	Improved floodplain management capabilities	Low - Medium	Town Budget	Short	High	LPR	PR
LG-4	Update the Town's Flood Damage Prevention Ordinance to provide the Town with greater ability to appropriately manage and regulate floodplain development. (Integration Action)											
	See above.	New and Existing	Flood	2, 5, 6, 7	Town Board; Town Building & Zoning Dept; Town Planning & PW Dept	Improved floodplain management capabilities	Low	Town Budget	Short	High	LPR	PR
LG-5	Acquire Floodplain/Floodway Lands: Through the Town's Open Space program, often with coordination with the Dutchess County Land Conservancy, continue to acquire flood vulnerable land. Currently the Town is working on the following acquisition efforts: <ul style="list-style-type: none"> Red Oak Farms tract (~40 acres), on which the Town could locate a properly located/designed wastewater treatment plant to help alleviate local septic system issues (failures, public health conditions). South-side of Ehmer Farm (~340 acres), Conservation Easement/Open Space Easement on a parcel affected by Jackson Creek flooding to prohibit future development and potentially provide flood mitigation. See Action Worksheet.											
	See above	Existing	Flood; Severe Storm	2, 3, 4, 6, 7	Town Board; Town Planning & Public Works Dept; Dutchess Land Conservancy	High	High	Town Budget; Dutchess Land Conservancy funding; FEMA and other grants as available	Ongoing	High	NSP, SIP	PP, NR
LG-6	Rebuild or /Remove Wappingers Dam – Identify owner of dam, and work with dam owner, DC SWCD and NYSDEC to either remove or rebuild the dam, as determined by local and state (NYSDEC) preferences and regulation. See Action Worksheet.											
	See above	Existing	Flood	1, 2, 3, 7	Town Planning & PW Dept working with DC SWCD and NYSDEC	Medium	Medium for removal; High for rebuild	Property Owner and Town Budget (project dependent)	Ongoing; Long Term	Low	SIP, NSP	PP, SP



Table 9.11-11. Proposed Hazard Mitigation Initiatives

Initiative	Mitigation Initiative	Applies to New and/or Existing Structures*	Hazard(s) Mitigated	Goals and Objectives Met	Lead and Support Agencies	Estimated Benefits	Estimated Cost	Sources of Funding	Timeline	Priority	Mitigation Category	CRS Category
LG-7	Creek Channel Rehabilitation – Implement clean-up/channel rehabilitation at the following locations: <ul style="list-style-type: none"> Jackson Creek at the Town’s park Facility – LaGrange Park – on Noxon Road Sprout Creek in the vicinity of Gidley Road See Action Worksheet.											
	See above	Existing	Flood; Severe Storm	2, 4	Town Highway; Town Planning & PW Dept; DC SWCD; NYSDEC	Reduced local flood vulnerability	Medium	Town Budget; grant funding as available	Short, depending on permitting and access	Low	NSP	NR
LG-8	Rebuild the Highway Salt Shed	Existing	Severe Winter Storm	2, 5	Town Highway; Town Board; Town Planning & PW Dept for support	Reduced vulnerability of critical structure to severe winter storms; COOP	High	Local Budget; grant funding as available	Within the next 2 years	High	SIP, EM*	PP, ES
LG-9	Promote and support non-structural flood hazard mitigation alternatives for at risk properties within the floodplain, including those that have been identified as Repetitive Loss (RL – 3 currently) and Severe Repetitive Loss (SRL – none currently), such as acquisition/relocation or elevation depending on feasibility. Assure that any mitigation addresses the 500-year flood event or "worst damage scenario". The parameters for this initiative would be: funding, benefits versus cost and willing participation of property owners. Specifically identified are properties in the following locations: <ul style="list-style-type: none"> Route 55 (residential property) Barmore Road (residential property) Milano Drive (residential property) 											
	See above.	Existing	Flooding, Severe Storm	2, 3	Town Board; Municipal NFIP FPA; support from NYSOEM and FEMA	High - Reduced or eliminated risk to property damage from flooding	High	FEMA or other mitigation grant funding, NFIP flood insurance and ICC; property owner for local match.	Long-term DOF	High	SIP, EAP	PP, PI

Notes:

Not all acronyms and abbreviations defined below are included in the table.

*Does this mitigation initiative reduce the effects of hazards on new and/or existing buildings and/or infrastructure? Not applicable (N/A) is inserted if this does not apply.



Acronyms and Abbreviations:

CAV	Community Assistance Visit
CRS	Community Rating System
DPW	Department of Public Works
FEMA	Federal Emergency Management Agency
FPA	Floodplain Administrator
HMA	Hazard Mitigation Assistance
N/A	Not applicable
NFIP	National Flood Insurance Program
OEM	Office of Emergency Management

Potential FEMA HMA Funding Sources:

FMA	Flood Mitigation Assistance Grant Program
HMGP	Hazard Mitigation Grant Program
PDM	Pre-Disaster Mitigation Grant Program
RFC	Repetitive Flood Claims Grant Program (discontinued 2015)
SRL	Severe Repetitive Loss Grant Program (discontinued 2015)

Timeline:

Short	1 to 5 years
Long Term	5 years or greater
OG	On-going program
DOF	Depending on funding

Costs:

Where actual project costs have been reasonably estimated:

Low	< \$10,000
Medium	\$10,000 to \$100,000
High	> \$100,000

Where actual project costs cannot reasonably be established at this time:

Low	Possible to fund under existing budget. Project is part of, or can be part of an existing on-going program.
Medium	Could budget for under existing work plan, but would require a reapportionment of the budget or a budget amendment, or the cost of the project would have to be spread over multiple years.
High	Would require an increase in revenue via an alternative source (i.e., bonds, grants, fee increases) to implement. Existing funding levels are not adequate to cover the costs of the proposed project.

Benefits:

Where possible, an estimate of project benefits (per FEMA's benefit calculation methodology) has been evaluated against the project costs, and is presented as:

Low=	< \$10,000
Medium	\$10,000 to \$100,000
High	> \$100,000

Where numerical project benefits cannot reasonably be established at this time:

Low	Long-term benefits of the project are difficult to quantify in the short term.
Medium	Project will have a long-term impact on the reduction of risk exposure to life and property, or project will provide an immediate reduction in the risk exposure to property.
High	Project will have an immediate impact on the reduction of risk exposure to life and property.

Mitigation Category:

- Local Plans and Regulations (LPR) – These actions include government authorities, policies or codes that influence the way land and buildings are being developed and built.
- Structure and Infrastructure Project (SIP)- These actions involve modifying existing structures and infrastructure to protect them from a hazard or remove them from a hazard area. This could apply to public or private structures as well as critical facilities and infrastructure. This type of action also involves projects to construct manmade structures to reduce the impact of hazards.
- Natural Systems Protection (NSP) – These are actions that minimize damage and losses, and also preserve or restore the functions of natural systems.
- Education and Awareness Programs (EAP) – These are actions to inform and educate citizens, elected officials, and property owners about hazards and potential ways to mitigate them. These actions may also include participation in national programs, such as StormReady and Firewise Communities

CRS Category:

- Preventative Measures (PR) - Government, administrative or regulatory actions, or processes that influence the way land and buildings are developed and built. Examples include planning and zoning, floodplain local laws, capital improvement programs, open space preservation, and storm water management regulations.
- Property Protection (PP) - These actions include public activities to reduce hazard losses or actions that involve (1) modification of existing buildings or structures to protect them from a hazard or (2) removal of the structures from the hazard area. Examples include acquisition, elevation, relocation, structural retrofits, storm shutters, and shatter-resistant glass.
- Public Information (PI) - Actions to inform and educate citizens, elected officials, and property owners about hazards and potential ways to mitigate them. Such actions include outreach projects, real estate disclosure, hazard information centers, and educational programs for school-age children and adults.



- *Natural Resource Protection (NR) - Actions that minimize hazard loss and also preserve or restore the functions of natural systems. These actions include sediment and erosion control, stream corridor restoration, watershed management, forest and vegetation management, and wetland restoration and preservation.*
- *Structural Flood Control Projects (SP) - Actions that involve the construction of structures to reduce the impact of a hazard. Such structures include dams, setback levees, floodwalls, retaining walls, and safe rooms.*
- *Emergency Services (ES) - Actions that protect people and property during and immediately following a disaster or hazard event. Services include warning systems, emergency response services, and the protection of essential facilities*



Table 9.11-12. Summary of Prioritization of Actions

Mitigation Action/Project Number	Mitigation Action/Initiative	Life Safety	Property Protection	Cost-Effectiveness	Technical	Political	Legal	Fiscal	Environmental	Social	Administrative	Multi-Hazard	Timeline	Agency Champion	Other Community Objectives	Total	High / Medium / Low
LG-1	Roadway Flood Mitigation	0	1	-1 to 1	1	1	1	1	0	1	1	1	0	1	1	9-11 (project specific)	Medium - High
LG-2	Amend sub-division ordinance to require new developments to underground all electric utilities	0	1	1	1	1	0	1	0	0	1	1	1	1	1	10	Medium
LG-3	Improve Floodplain Mapping	1	1	1	1	1	1	1	0	1	1	0	0	1	1	11	High
LG-4	Update the Town's Flood Damage Prevention Ordinance	1	1	1	1	1	1	1	0	1	1	0	0	1	1	11	High
LG-5	Acquire Floodplain/Floodway Lands	0	1	0	1	1	0	1	1	1	1	1	1	1	1	11	High
LG-6	Rebuild or /Remove Wappingers Dam	1	1	0	0	1	0	-1	0	0	0	1	0	1	1	6	Low
LG-7	Creek Channel Rehabilitation	0	1	0	1	1	-1	0	-1	1	1	1	0	1	1	6	Low
LG-8	Rebuild the Highway Salt Shed	0	1	1	1	1	1	0	1	1	1	1	1	1	1	12	High
LG-9	Promote and support mitigation of flood vulnerable private property, including RL/SRL	1	1	1	1	1	1	1	0	1	1	0	0	1	1	11	High

Note: Refer to Section 6 which contains the guidance on conducting the prioritization of mitigation actions.



9.11.7 Future Needs To Better Understand Risk/Vulnerability

None at this time.

9.11.8 Hazard Area Extent and Location

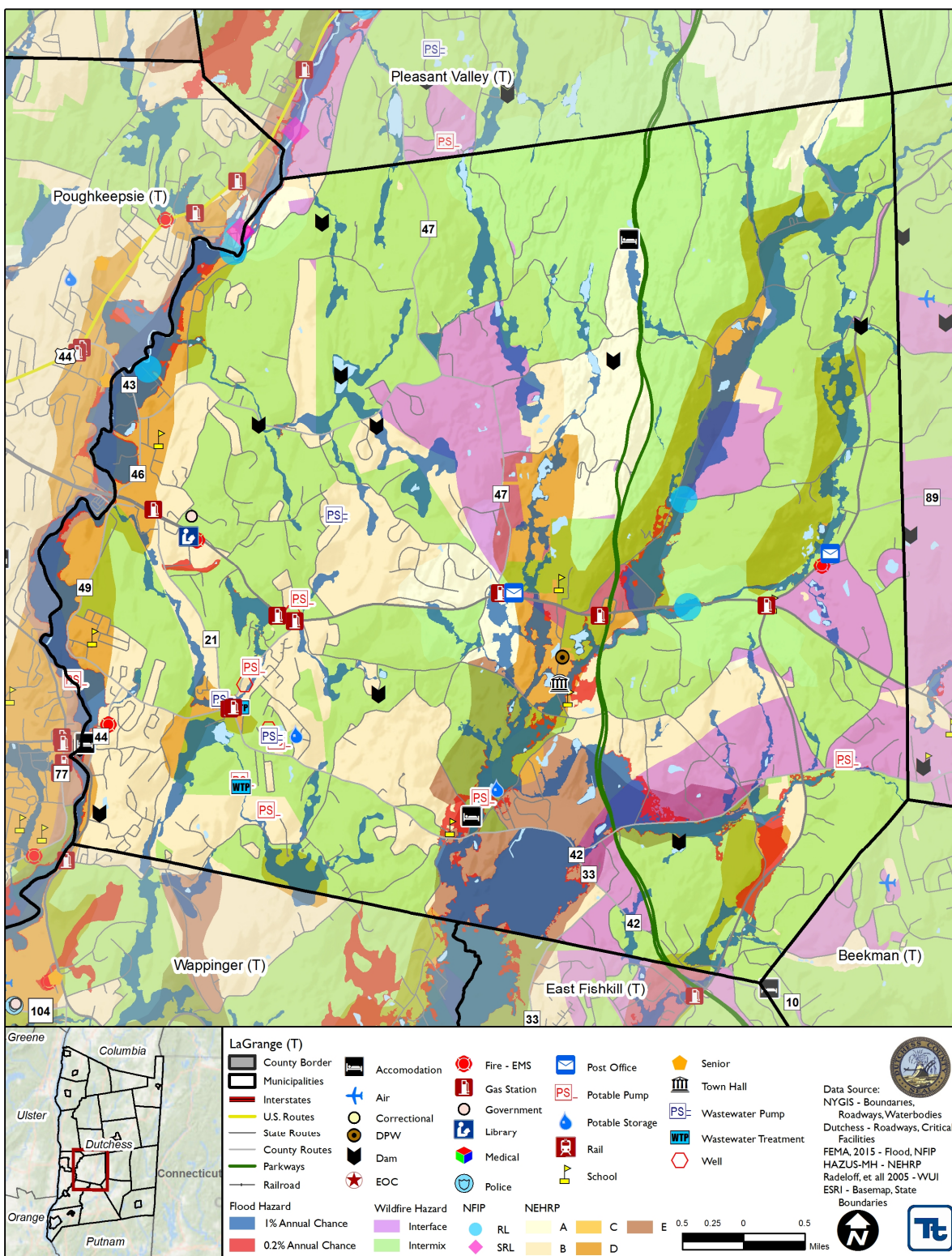
Hazard area extent and location maps have been generated for the Town of LaGrange that illustrate the probable areas impacted within the municipality. These maps are based on the best available data at the time of the preparation of this plan, and are considered to be adequate for planning purposes. Maps have only been generated for those hazards that can be clearly identified using mapping techniques and technologies, and for which the Town of LaGrange has significant exposure. These maps are illustrated in the hazard profiles within Section 5.4, Volume I of this Plan.

9.11.9 Additional Comments

None at this time.



Figure 9.11-1. Town of LaGrange Hazard Area Extent and Location Map 1





Action Number:

LG-1

Mitigation Action Name:

Roadway Flood Mitigation

Assessing the Risk	
Hazard(s) addressed:	Flood, Severe Storm
Specific problem being mitigated:	Numerous town-owned roads throughout the Town are vulnerable to flood damage, primarily as a result of inadequate stormwater management infrastructure.
Evaluation of Potential Actions/Projects	
Actions/Projects Considered (name of project and reason for not selecting):	No action will result in continued road damage and chronic road repair. Stormwater infrastructure upgrades are the only feasible and cost-effective approach to mitigating these vulnerabilities.
Action/Project Intended for Implementation	
Description of Selected Action/Project	<p>Mitigate flooding over roads throughout the Town, which may involve culvert upsizing, upgrading to box culverts/3-sided structures, etc. as determined by site-specific conditions. The following locations have been identified for mitigation:</p> <ul style="list-style-type: none">• Velie Road at approximately 118 Velie Road• Barmore Road at approximately 20 Barmore Road• Skidmore Road at approximately 321 Skidmore Road• Gidley Road at approximately 2 Dawn Lane• Gidley Road north of Creekside Road• Emans Road on the west-side of the intersection with Route 82• Todd Hill Road at approximately 68 Todd Hill Road• Freedom Park (Town Facility – entrance) on Skidmore Road• DeGarmo Road (County Road) at Town Boundary with the Town of Poughkeepsie (south of Wappingers – site of Town Water Facility – Manchester Water Plant)• Milano Road/Flynn Road/Colin Road (the neighborhood we have already acquired 2 parcels in to perform remediation work)• Daley Road at the Town boundary• Moore Rd & Skidmore Road intersection
Mitigation Action Type	SIP
Goals Met	2, 4, 7
Applies to existing and or new development, or not applicable	Existing
Benefits (losses avoided)	Reduced damage to transportation infrastructure; localized property flooding; road closures; potential life safety
Estimated Cost	Medium – High (project specific)
Priority*	Medium – High (project specific)
Plan for Implementation	
Responsible Organization	Town Highway; Town Planning & PW (support); DCDPW
Local Planning Mechanism	Capital Improvement Budget; Stormwater Management Plan
Potential Funding Sources	Town Budget; FEMA and other grants as available
Timeline for Completion	Project Specific – More extensive projects may be dependent on funding availability
Reporting on Progress	
Date of Status Report/ Report of Progress	Date: Progress on Action/Project:

**Action Number:**

LG-1

Mitigation Action Name:

Roadway Flood Mitigation

Criteria	Numeric Rank (-1, 0, 1)	Provide brief rationale for numeric rank when appropriate
Life Safety	0	No significant life safety issues associated with these projects
Property Protection	1	Will protect public infrastructure
Cost-Effectiveness	-1 to 1	Cost-effectiveness not yet determined on a project-specific basis
Technical	1	Town and contractor technical capabilities sufficient to implement
Political	1	Supported politically
Legal	1	Town has legal authority to implement projects
Fiscal	1	Funding will need to be approved/appropriated on a project-specific basis
Environmental	0	
Social	1	Benefits all social segments
Administrative	1	Town has the administrative capabilities to implement
Multi-Hazard	1	
Timeline	0	Dependent on funding
Agency Champion	1	Town Highway and Town Planning and Public Works
Other Community Objectives	1	Long-term risk reduction/management and sustainability
Total	9-11	
Priority	Medium – High (project specific)	

**Action Number:**

LG-6

Mitigation Action Name:

Rebuild or /Remove Wappingers Dam

Assessing the Risk	
Hazard(s) addressed:	Flood, Severe Storm
Specific problem being mitigated:	Wappingers Dam ownership and compliance with regulations is undetermined. The dam poses a significant dam failure risk.
Evaluation of Potential Actions/Projects	
Actions/Projects Considered (name of project and reason for not selecting):	No action will result in the risk remaining unabated. Ownership of the dam must first be determined, after which actions to assess the condition of the dam, compliance with regulations, and actions to either repair/upgrade the dam or remove it can be made.
Action/Project Intended for Implementation	
Description of Selected Action/Project	Identify owner of dam, and work with dam owner, DC SWCD and NYSDEC to either remove or rebuild the dam, as determined by local and state (NYSDEC) preferences and regulation.
Mitigation Action Type	SIP, NSP
Goals Met	1, 2, 3, 7
Applies to existing and or new development, or not applicable	Existing
Benefits (losses avoided)	Medium – potentially reduced risk of life safety and downstream property and infrastructure damage
Estimated Cost	Medium for removal; High for rebuild
Priority*	Low
Plan for Implementation	
Responsible Organization	Town Planning & PW Dept. working with DC SWCD and NYSDEC
Local Planning Mechanism	Dam Emergency Action Plan; State dam regulations
Potential Funding Sources	Property Owner and Town Budget (project dependent)
Timeline for Completion	Ongoing; Long Term
Reporting on Progress	
Date of Status Report/ Report of Progress	Date: Progress on Action/Project:

**Action Number:**

LG-6

Mitigation Action Name:

Rebuild or /Remove Wappingers Dam

Criteria	Numeric Rank (-1, 0, 1)	Provide brief rationale for numeric rank when appropriate
Life Safety	1	Potential life safety concerns – undetermined
Property Protection	1	May protect public property and infrastructure
Cost-Effectiveness	0	Cost-effectiveness not yet determined
Technical	0	Technical resources not identified
Political	1	Identification of owner and actions by owner supported politically
Legal	0	Town does not own the dam
Fiscal	-1	Funding sources unidentified
Environmental	0	No clear environmental benefits or costs
Social	0	Benefits limited populations
Administrative	0	Town does not have the resources to implement rehab or removal
Multi-Hazard	1	
Timeline	0	Ongoing, but timeline is not set by Town
Agency Champion	1	Town Highway and Town Planning and Public Works
Other Community Objectives	1	Long-term risk reduction/management and sustainability
Total	6	
Priority	Low	

**Action Number:**

LG-7

Mitigation Action Name:

Creek Channel Rehabilitation

Assessing the Risk	
Hazard(s) addressed:	Flood, Severe Storm
Specific problem being mitigated:	Proper flow within stream channels throughout the Town continue to be degraded by fallen trees and other natural and man-made debris, as well as long term siltation and deposition. This has resulted in localized problems with streambank erosion and overbank flooding.
Evaluation of Potential Actions/Projects	
Actions/Projects Considered (name of project and reason for not selecting):	No action will result in the risk remaining unabated. Large-scale stream channel dredging is not generally permissible, cost-effective, or often legally possible due to access issues. The most available approach is to work with DC SWCD, NYS DEC and other stakeholders to develop and implement channel clean-up and rehabilitation projects for specific stream segments/reaches.
Action/Project Intended for Implementation	
Description of Selected Action/Project	Creek Channel Rehabilitation – Implement clean-up/channel rehabilitation at the following locations: <ul style="list-style-type: none">• Jackson Creek at the Town's park Facility – LaGrange Park – on Noxon Road• Sprout Creek in the vicinity of Gidley Road
Mitigation Action Type	NSP
Goals Met	2,4
Applies to existing and or new development, or not applicable	Existing
Benefits (losses avoided)	Reduced local flood vulnerability
Estimated Cost	Medium
Priority*	Low
Plan for Implementation	
Responsible Organization	Town Highway; Town Planning & PW Dept.; DC SWCD; NYSDEC
Local Planning Mechanism	Local Budgets; regional stream management programs
Potential Funding Sources	Town Budget; grant funding as available
Timeline for Completion	Short, depending on permitting and access
Reporting on Progress	
Date of Status Report/ Report of Progress	Date: Progress on Action/Project:

**Action Number:**

LG-7

Mitigation Action Name:

Creek Channel Rehabilitation

Criteria	Numeric Rank (-1, 0, 1)	Provide brief rationale for numeric rank when appropriate
Life Safety	0	No life safety issues
Property Protection	1	May protect private property and infrastructure
Cost-Effectiveness	0	Cost-effectiveness not yet determined
Technical	1	Technical resources available
Political	1	Supported politically
Legal	-1	Permitting and site access are challenges
Fiscal	0	Funding not budget or secured
Environmental	-1	Environmental permitting is a challenge
Social	1	Benefits all populations
Administrative	1	Town has the administrative resources to implement
Multi-Hazard	1	
Timeline	0	Short, depending on permitting and access
Agency Champion	1	Town Highway and Town Planning and Public Works, DC SWCD
Other Community Objectives	1	Long-term risk reduction/management and sustainability
Total	6	
Priority	Low	